

## Precision Laser Development for Gravitational Wave Space Mission

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Optical fiber and semiconductor laser technologies have evolved dramatically over the last decade due to the increased demands from optical communications. We are developing a laser (master oscillator) and optical amplifier based on those technologies for interferometric space missions, such as the gravitational-wave mission LISA, and GRACE follow-on, by fully utilizing the mature wave-guided optics technologies. In space, where a simple and reliable system is preferred, the wave-guided components are advantageous over bulk, crystal-based, free-space laser, such as NPRO (Non-planar Ring Oscillator) and bulk-crystal amplifier, which are widely used for sensitive laser applications on the ground.